

rials and modes of working; the second, of principles of construction, action, and application, cutting tools, machines derived from hand tools, &c. The third volume, now issued, comprises, besides its other varied details, a useful descriptive catalogue of the apparatus, materials, and processes, for grinding and polishing, commonly employed in the mechanical arts; much valuable instruction as to the composition and preparation of varnishes, &c.; and an index to the three volumes now published. The fourth and fifth volumes will relate to turning, simple, complex, and ornamental; and the sixth to amateur mechanical engineering.

Notices of Sepulchral Monuments in English Churches, from the Norman Conquest to the Nineteenth Century. By WM. HASTINGS KELK, A.B. London: Chas. Cox, 1850.

MR. KELK is one of the honorary secretaries of the Buckingham Architectural and Archaeological Society, and the pamphlet named above is a paper read by him at their third annual meeting, illustrated by numerous woodcuts. They who are not disposed or able to obtain the larger works published on these memorials of past time, may gain a good general knowledge of the subject from the notices before us, brief as they are.

We are glad to find the reverend gentleman pronouncing strongly against burial in churches. As to the admission of monuments into churches, he says,—

"First let us notice what should be avoided:—

1. Monuments which, from size or position, may interfere with the due celebration of Divine service.
2. Monuments differing in form and character from the general principles of ecclesiastical architecture.
3. All emblems, decorations, and inscriptions which necessarily would remind the beholder of Paganism or of Popery.
4. Emblems of mere mortality; such as skulls, cross-bones, and emaciated figures, as being suggestive rather of annihilation than of immortality.

Let us now notice what kinds of memorial are adapted for admission into churches:—

1. Stained-glass windows. This kind of memorial is not only ornamental to the church, but affords the happiest facilities for scriptural illustration and emblematic commemoration.
2. Stone slabs forming part of the pavement. The memorial and decorative devices may be either engraved on the slab, or on metal plates sunk into it.
3. Altar-tombs and sculptured effigies are well adapted for cathedral and large churches. The monument of Edward the Black Prince is an admirable model.
4. A font, or other durable requisite, constitutes a suitable memorial in a church. The memorial inscription may be incised in the base or pedestal.
5. Mural tablets should be constructed on the principles of Gothic architecture, and harmonise with the prevailing style of the church. They should, if possible, be recessed into the wall, and resemble the plaques or sedilia, which, in the hands of a skilful architect, afford excellent models, from the simplest to the most elaborate design."

The modern example which the writer gives and praises is of a very common type.

Miscellaneous.

RECORDS OF ANCIENT AMERICAN MINING.—At Lake Superior, whence such enormous masses of metallic copper have been got, a curious record of ancient mining was lately found. It consists of a stick of oak timber, about 10 feet long, with short cut limbs or stumps, two feet apart, and at nearly right angles with each other, and on the same plane. This obvious original of a mining ladder was found standing erect in an ancient pit or shaft, 27 feet below the surface, with rocks and earth accumulated in and about it, and great trees growing over and out of it. The substance of the oak was almost disintegrated till dried in the sun. Several copper chisels and wedges were also found, leaving little doubt, we should think, of the fact, that the ancient secret of hardening copper, so as to render it, not a mere inferior substitute, but a superior instrument to the more perishable iron, must have been known to these ancient American copper miners,—unless, indeed, copper cuts copper, as "diamond cuts diamond."

THE DEVONSHIRE DORADO.—The strata abound in valuable lodes of tin ore. The unstratified formation is equally and universally rich in inexhaustible tracts of the finest granite, of the kind of which is composed the Nelson Column, in Trafalgar-square, in London. Within seven miles of Plymouth is to be found an inexhaustible supply of the very finest fire-brick earth, superior in quality even to the far-famed brick earth of Stourbridge. A bed, nine hundred acres in extent, and of an ascertained depth of a hundred and twenty feet, has been discovered, which, on being analyzed, is found to produce a virtually inexhaustible supply of the finest porcelain clay, perhaps, to be found in the world. It has been compared by Brogniart, the celebrated manufacturer of Sévres, Bethier, and others, with that of St. Lieveux, in France, and St. Austell, in Cornwall, and pronounced superior to either. Then, as to the means of manufacture: at the distance of only thirty miles the Bovey Tracey lignite quarries supply an article eminently adapted for baking earthenware of every description.—*Household Words.* [We have long understood that some of the decomposed granite washed down from the Dartmoor tors constituted a porcelain clay that vied with the finest ever used. In China such clay is prepared by like decomposition of its stony materials, collected and imbedded for generations as an heirloom in families, for the purpose of manufacturing porcelain. We have not yet reached that stage of provident civilization.]

RECENT AMERICAN PATENTS.—Mr. S. P. Ruggles, of Boston, for a machine for cutting sheet metal, claims a mode of causing the cutting periphery of the rotary knife to travel around faster than the knife moves horizontally, and thereby to make said knife cut with a drawing stroke; also a mode of cutting either circular or curved work, as described, and of any diameter or dimensions capable of being produced by the machine, of whatever size it may be made.—Mr. H. Knowles, of Washington, for an improvement in saws, claims the forward projection of the cutting edge of the teeth, with an outward inclination from plane or curved surfaces (separated by notches) a distance equal to the thickness or chip that each tooth is intended to remove.—Mr. J. Van Brocklin, of Middleport, Niagara County, New York, for improvements in machines for heading bolts, rivets, &c. claims the attachment, in the lower part of the box or holder, of a flaring or bell-mouthed cavity, which embraces the tapered ends of the dies when the box is down or in a vertical position, and clamps them firmly together, while the cavity acts as a guide and prevents the metal being forced out between the ends of the dies and bottom of the cavity.

CROSSING THOROUGHFARES.—The terribly crowded condition of our great thoroughfares renders the crossing of them at all times a difficult and slow business, and sometimes even a dangerous performance. Permit me, through your medium, to suggest the expediency of throwing light cast-iron bridges over the most frequented crossings. The bridges might be divided longitudinally by a light fence or railing, to enable parties to pass to and fro; and access to them might easily be gained by a double spiral staircase. By this means our thronged streets might be crossed in safety, and without exposure to the unctuous mud, while those who preferred risking their necks by threading the carriages, &c., to losing the few moments of additional time required for ascending and crossing the bridges, would still be at perfect liberty to do so.

Royal Society.

C. R. WELD.

*. The suggestion has already been made in our journal; but we willingly strengthen it with Mr. Weld's opinion.

CLEANSING THE SERPENTINE.—Seeing the many and just complaints relative to the present state of the Serpentine, and also the plan proposed in your pages for its cleansing, permit me to suggest the following, as a means when cleaned (which is an easy matter) of keeping the bottom free from similar accumulations. The ingress of water I place in lowest possible position, and distribute such supply as evenly as I can across its entire bottom. The egress is placed at lowest possible point also, and similarly distributed: thus a constant flow is obtained in the required direction,—viz. the bottom, and the sediment now daily

accumulating carried off by the so induced current. By the present arrangement the water is admitted, and then allowed to settle; if there happen to be an overflow, it escapes over the top near the waterfall, having first safely lodged its deposit in the depths of the reservoir. Such method have I adopted with mill-ponds, reservoirs, &c., that used to be filled up almost after every heavy rain, but wherever I adopted bottom currents, aided by my self-acting sluice-gate, I have met with decided success.—HARCOURT THOMPSON.

THE IVORY TRADE.—Few persons have an idea of the value or extent of the importations of ivory into Southampton, principally from Alexandria, by the Peninsular and Oriental Company's steamers. The demand has greatly increased during the last few years; and although the supply has been considerably augmented, it is not equal to the demand. The tusks and pieces (nearly 3,000 in all) brought here by the Ripon on her last voyage were on Tuesday last sold by public auction in London, and readily realised from 15s. to 25s. per pound, the whole producing nearly 25,000l., the greater portion of which was paid down immediately, a discount of 2½ per cent. being allowed for cash, but no payment is extended beyond one month from the day of sale.—*Hampshire Independent.*

PROPOSED IMPROVEMENT AT LONDON-BRIDGE.—In October last a reference was made by the Court of Common Council to the Navigation Committee in relation to the danger of crossing at the south end of London-bridge. Mr. Dawson, a member of the Common Council, proposed a plan by which such danger would be entirely obviated. We have already alluded to it, but it seems to deserve further mention. The object is to make an arched foot-thoroughfare beneath the road from the first landing down the steps on the east side, to the corresponding landing on the west side. By this means a safe and easy transit would be afforded to the great number of passengers from the railway termini, who require to go to the western parts of the metropolis by steam-boats from the pier on the west side of the bridge, as well as to the greater number of persons wishing merely to cross from one side of the bridge to the other, without the risk of accidents, at present unavoidable, on account of the roadway being usually thronged with vehicles. The possibility of interfering with the stability of the bridge would first have to be considered; but this being settled, it is hoped that the corporation of London will not allow expense to be an object when so great a convenience can be afforded to the public at an outlay comparatively trifling.

THE CENTRAL AMERICAN CANAL PROJECT.—A discussion on this subject by the Royal Geographical Society has of late been exciting a good deal of interest. Some of the speakers incidentally referred to the volcanic nature of the district, to which attention was drawn by our correspondent, Captain Nelson, of the Royal Engineers, in his precautionary article in our columns of 27th July last. That article, by the way, has been reprinted by the *Nassau Guardian* of 25th September last, together with a long appendix of quoted opinions, by Mr. Stephens and other authorities, confirming the view of our correspondent, and a map of the district, the whole communication extending to almost one-half of the impression of the paper containing it.

AMONGST the many improvements suggested in this age of invention, are vulcanised India rubber covers for the iron tyres of carriage wheels. The advantages are stated to be an increase of the durability, and lessening the noise when moving over hard surfaces, and also lessening the draught, the wheels being in fact springs, and hence, by their elasticity, giving a lighter draught than those with iron tyres. One set of wheels so prepared has run over 4,000 miles with so little appearance of being worn out, that it is calculated that the same wheels will yet run over 3,000 or 4,000 miles more. The iron tyre in present use is usually worn out in 3,000 miles. It is probable that gutta percha will be used for the same purpose. We intend to make a trial on our garden barrows.—*N. B. Horticulturist.* [We suspect that gutta percha, in the bootcase at least, may rather retard work by its adhesive property than promote it by its elastic. In summer heat it is quite soft.]